Boeing Commercial Airplane Group
P.O. Box 3707
Seattle, WA 98124-2207

BB-D

September 3, 1998
R-1150-97-LLP-257

Ms. Barbara Badger-Dawson
King County Dept. of Natural Resources
130 Nickerson Street, Suite 200
Seattle, WA 98109-1658

BOEING

Dear Ms. Badger-Dawson

SUBJECT: REQUEST FOR DISCHARGE GROUNDWATER FROM DEWATERING CONSTRUCTION BUILDING 3-335 PROJECT NORTH BOEING FIELD PERMIT NOS. 7594

Enclosures: (1) Attachment I Discharge Location of Dewatering Activity
(2) Attachment II Technical Description of Dewatering Plan
(3) Attachment III Water Quality Analyses

The Boeing Company (Boeing) plans to construct Building 3-335 on North Boeing Field (NBF) at the same site that Building 3-321 was demolished. To control groundwater infiltration into excavations required for this construction, temporary wells will be installed. We are planning to discharge groundwater into a 8 inch Boeing sanitary sewer line that eventually connects to a 42 inch Metro line in East Marginal Way S at Manhole #3-E-1. The project location is shown on the enclosed site map (Attachment 1) along with the proposed discharge point. We anticipate that dewatering will be required between September 14, to October 31, 1998.

Dewatering will occur by installing temporary wells at the time of excavation. The water will be drawn from the wells and pumped into two (2) baffled tanks connected in series for settling solids, recording flow, and sampling purposes. The total daily maximum water discharge is estimated at 216,800 gallons (150 gallons per minute). A more detailed description of the dewatering section is enclosed as Attachment II.

Groundwater samples have been collected on numerous occasions from a monitoring well located on the north side of Building 3-321 (see site map in Attachment III). Analytical results of samples collected which are included in Attachment III, indicate that the groundwater meets KCNDR limits for TPH and PCB's after filtration. Low level PCB concentrations have been detected, however are associated with settleable solids which will settle out in the two baffled tanks.

KCSlip4 69711

On August 6, 1997, additional samples were collected and analyzed for turbidity, suspended solids, "Metro" metals, FOG, pH, cyanide, volatile organics, semi-volatile organics and dissolved oxygen, which are also attached for your review. These analytical results also indicate that the groundwater meets KCDNR limits for these parameters.

Boeing requests approval to discharge treated water into the sanitary sewer. Boeing has is providing this information to the city of Seattle Public Utilities Department (Kami Wong).

BOEING

We appreciate your help in assisting Boeing meet our construction needs. If you have any questions, or require additional information concerning the enclosed application, please contact Larry Petersen at 206-655-8368.

Sincerely,

L.M. Babich, III
737/757 Programs Environmental Affairs Manager
R-1150, M/S 63-41
425-234-1766

Enclosures

KCSlip4 69712

SEA437803

NORTH BOEING FIELD

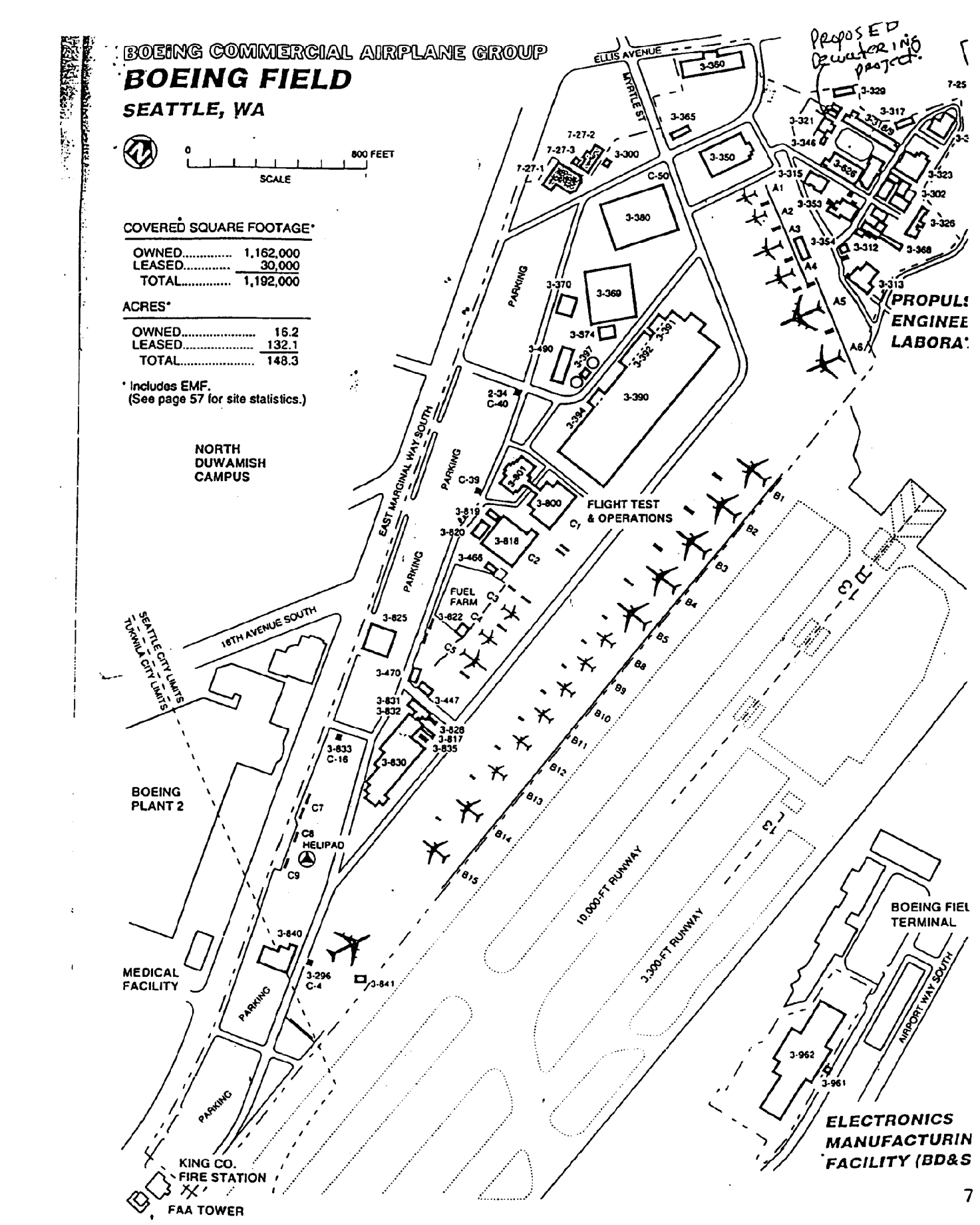
DISCHARGE LOCATION OF DEWATERING ACTIVITY

FOR

BUILDING 3-335

KCSlip4 69713

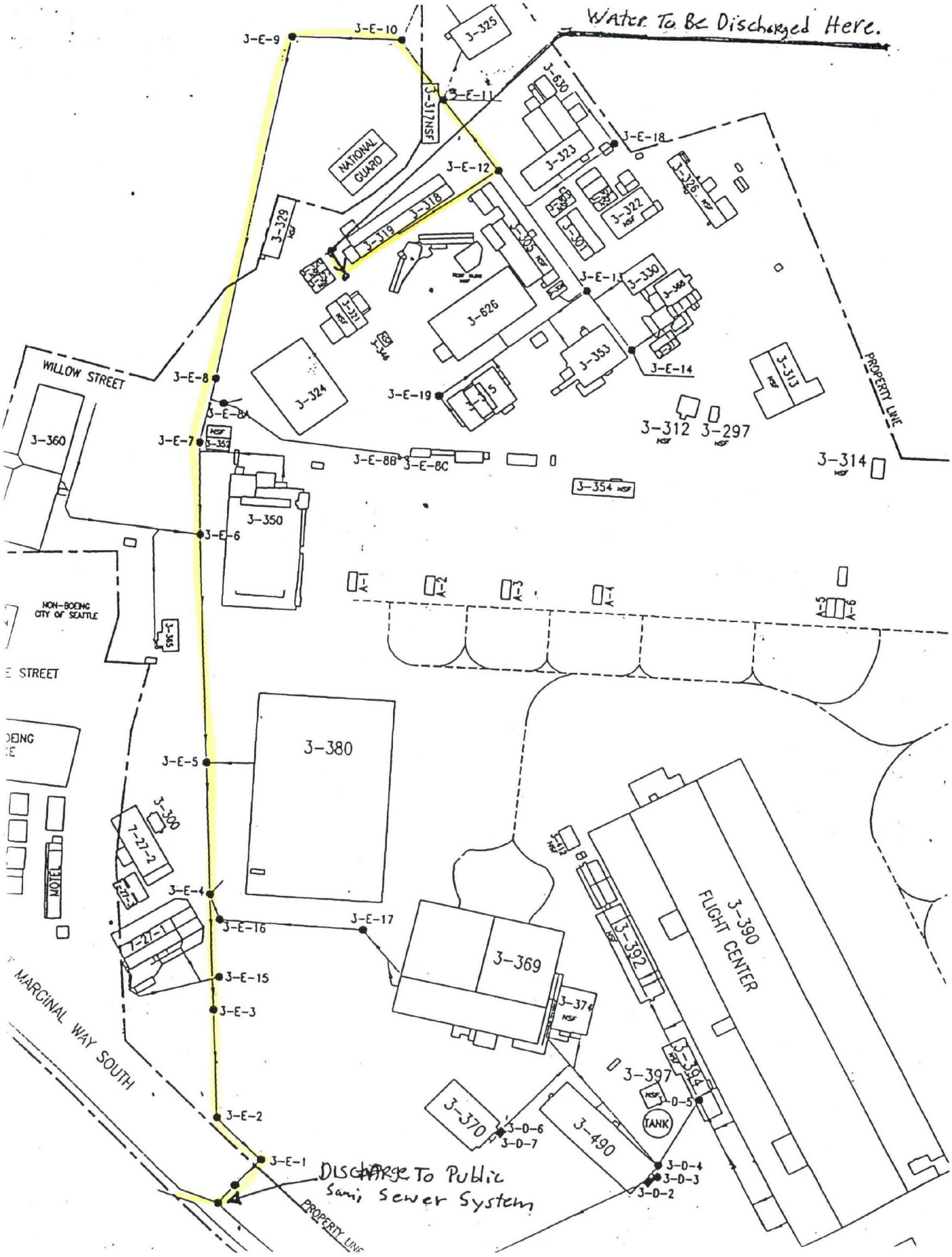
SEA437804



7

KCSlip4 69714

SEA437805



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SEA437806

KCSlip4 69716

SEA437807

NORTH BOEING FIELD

TECHNICAL DESCRIPTION OF DEWATERING ACTIVITY

FOR

BUILDING 3-335

KCSlip4 69717

SEA437808

NORTH BOEING FIELD

Technical Description of Dewatering Plan

FOR

Construction of Building 3-335 Project

Technical description of dewatering plan:

1.	pump size & power source:	5 HP electrical .
2.	approximately diameter & length of header pipe:	6 inch & 150 feet.
3.	estimated maximum excavation depth:	9 feet.
4.	depth of ground water:	5 feet.
5.	number of wells:	7
6.	well point depth:	23 feet

Technical description of pretreatment system:
Boeing plans to use one (1) 20,000 gallon baffled settling tank and one (1) 9,000 gallon weir tank for the settling of settleable solids. The total capacity of the retention system will provide over 2 hours of settlement time before discharge. We anticipate this will further reduce solids in the discharge.

Dewatering estimate:

1.	estimated total volume :	6,048,00 gallons.
2.	estimated discharge per day:	216,800 gallons
3.	estimated flow rate:	150 gallons /minute.

BAUGH

3-335 Fuel Properties Laboratory Dewatering Program

8-10-98

System

The De-watering System installed for use on this project will consist of 7 Ea. 3" wellpoints, jetted to a depth of approximately 23 feet, using a 12" casing. The 3" PVC wellpoint will then be inserted into the casing, and the void filled with filter pack material (granulithic sand). The casing will then be withdrawn. The bottom 3' of the wellpoint consists of PVC with 30/1000" slotting, for filtering of solids. The wellpoints are equipped with valves, which will allow control of the volume of water pumped at each point. A vacuum system will pump the water to a pair of Baker tanks, the first being a 20,000 gallon holding tank, the second being a 9,000 gallon weir tank. Water will be discharged into the Sanitary manhole near the south-west corner of the 3-333 Building.

Monitoring

Discharge quantities will be logged and recorded on a daily basis, or when significant changes to the system occur, i.e. start-up of new wells, or activating and reconfiguring the number of wellpoints being utilized. The method of recording discharge quantities will consist of McCrometer model M0306 inline flowmeter, installed in the discharge line from the weir tank.

Total solids, translucency, and odor and sheen will be monitored and recorded on a daily basis. Total solids will be determined through use of an Imhoff Cone. Samples will be taken at the discharge point, and allowed to settle for 1 hour before readings are taken and logged. Translucency, odor and sheen will also be recorded at that time. Groundwater levels will also be monitored and logged on a daily basis, or when system is reconfigured or adjusted. This will be accomplished by taking physical readings of the water levels in selected wellpoints.

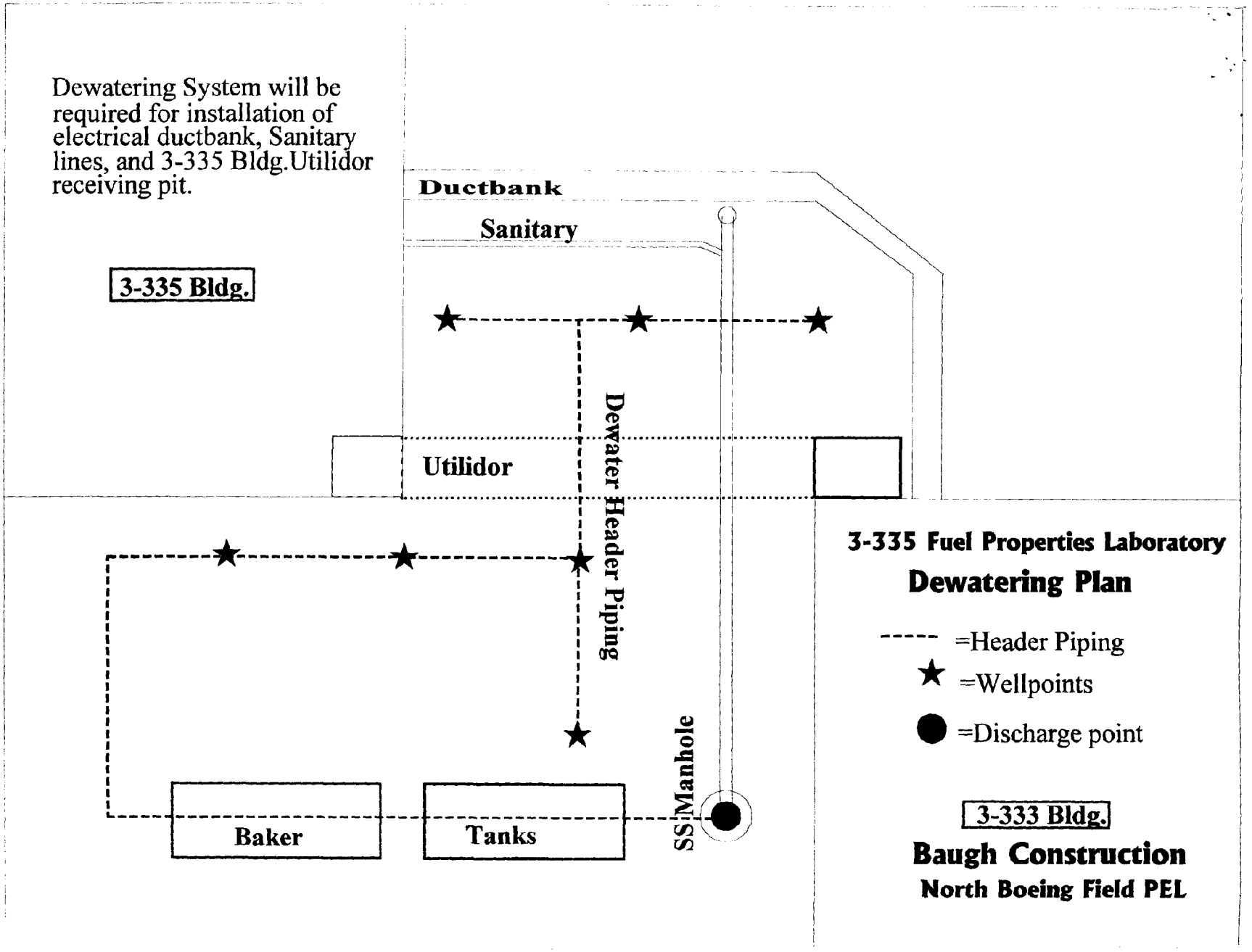
Copies of our logs are attached. Record copies of the Dewatering Permit, Dewatering Plan, and logs will be maintained at the jobsite.

Quantities

The system will need to draw down the water table to an elevation of approximately 0.0', in order to maintain dry conditions to 24" below the excavations. It is estimated that we will be discharging up to 150 GPM, total of 216,000 Gallons per day, for a period of up to 4 weeks. Estimated start date: 9/14/98.

J. McG

KCSlip4 69719



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3-335 Fuel Properties Laboratory
Dewatering
Discharge Log

Date	Time	Meter # (x100)	24 Hour Total	Gals. Per Min.	Initial

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SEA437812

BAUGH

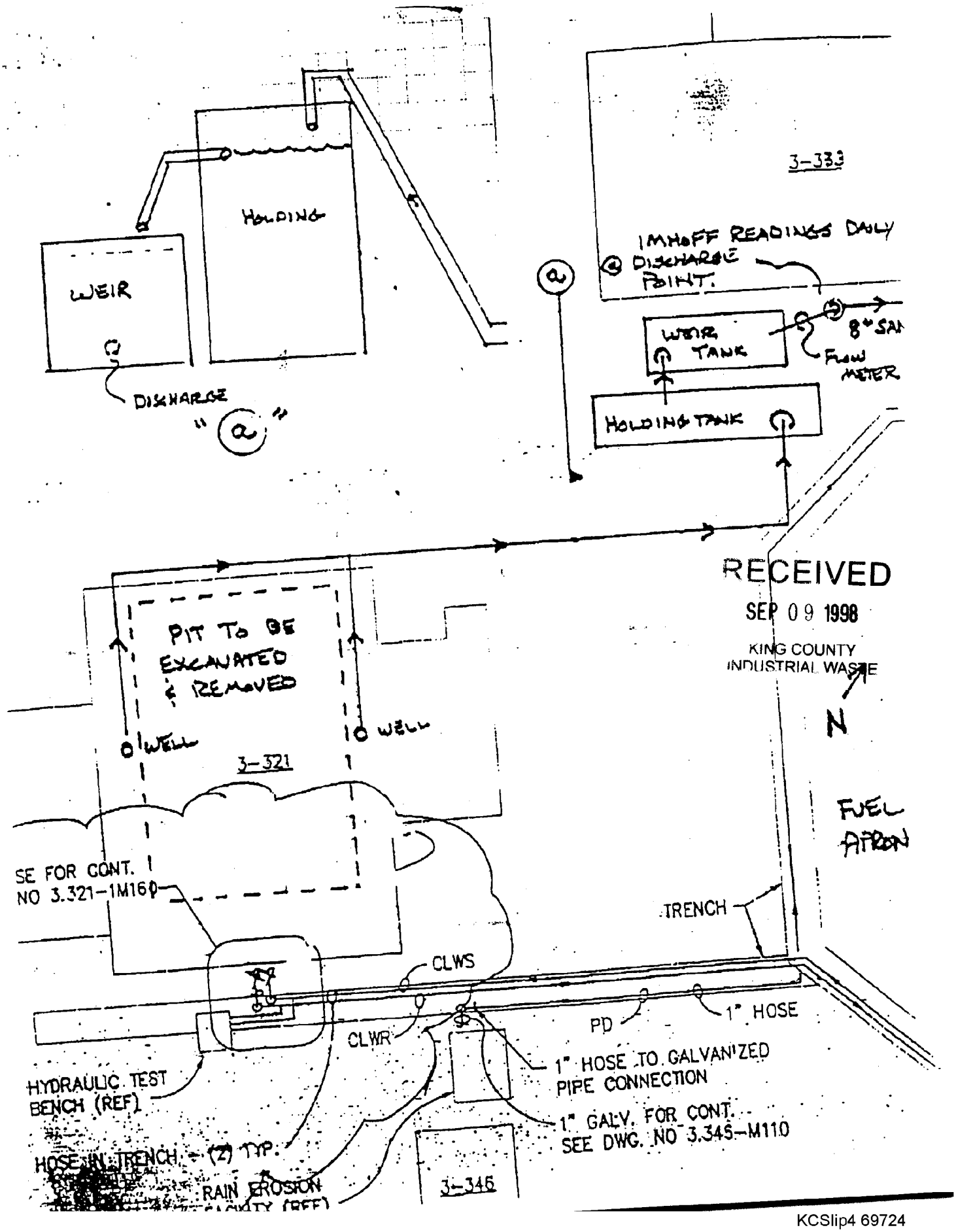
3-335 Fuel Properties Laboratory
<u>DEWATERING</u>
WELLPOINT SYSTEM MONITORING

DATE	TIME	IMHOFF #	TURBIDITY	ODOR/SHEEN	INITIAL

BAUGH

3-335 Fuel Properties Laboratory
Dewatering
Groundwater level Log

Date	Time	Wellpoint #	Control Depth	Depth Reading	Initial



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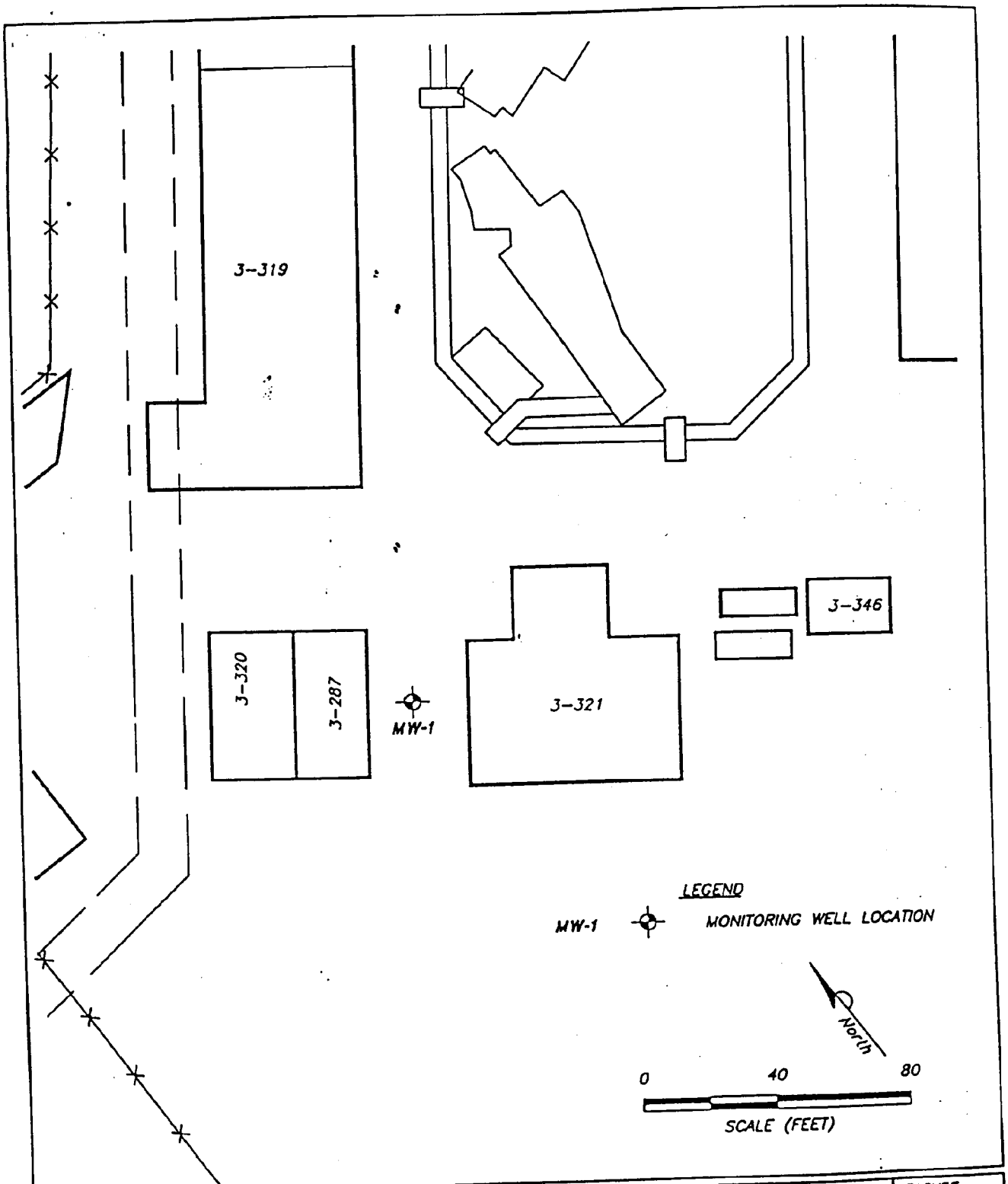
NORTH BOEING FIELD

WATER QUALITY ANALYSES

FOR

BUILDING 3-335



SECOR
International Incorporated

MONITORING WELL LOCATION MAP

PROPOSED 3-333 BUILDING
NORTH BOEING FIELD
SEATTLE, WASHINGTON

FIGURE: 3

JOB #: 00100-103-01 APPR: DWN: AJE DATE: 7/8/96

DWG: B010336A

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SEA437817

TABLE 1
HISTORICAL WELL MONITORING DATA
3-333 BUILDING
NORTH BOEING FIELD
SEATTLE, WASHINGTON

Well ID	Monitoring Date	Depth to Water (feet)	Floating NAPL Thickness (feet)	Remarks
MW-1	12/02/94	5.58	0.00	
	5/24/95	4.40	0.00	slight sheen and odor
	9/19/95	5.13	0.00	
	3/20/96	3.87	0.00	slight sheen/no odor

NOTES:
1. NAPL = non-aqueous phase liquid.
2. Remarks are based on field observations.

TABLE 2
HISTORICAL GROUNDWATER ANALYTICAL RESULTS
3-333 BUILDING
NORTH BOEING FIELD
SEATTLE, WASHINGTON

Well ID	Date Sampled	TRPH (mg/L)	TPH-D (mg/L)	TPH-G (mg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethyl Benzene (µg/L)	m,p-Xylenes (µg/L)	o-Xylenes (µg/L)	Unfiltered PCB's (µg/L)	Filtered PCB's (µg/L)
MW-1	12/02/94	23	25	2.8	1.6	1.3	3.1	ND<1.0	ND<1.0	840	--
	5/24/95	5.6	3.6	1.0	2.5	ND<1.0	1.8	ND<1.0	ND<1.0	34	ND<1.0
	9/19/95	2.2	3.1	1.3	1.5	ND<1.0	1.1	ND<1.0	ND<1.0	63	ND<1.2
	3/20/96	ND<1.0	1.1	0.32	--	--	--	--	--	22.9	ND<1.0
MTCA Method A Cleanup Level:		1.0(a)	1.0(a)	1.0(a)	5.0	40.0	30.0	20.0	20.0	0.1	0.1

NOTES:

TRPH = Total recoverable petroleum hydrocarbons, (C_7 to greater than C_{50}) by Ecology Method WTPH-418.1.
TPH-D = Petroleum hydrocarbons within the diesel range (C_{12} to C_{24}) by Ecology Method WTPH-D.
TPH-G = Petroleum hydrocarbons within the gasoline range (toluene to C_{12}) by Ecology Method WTPH-G.
Benzene, toluene, ethylbenzene, and xylenes by U.S. EPA Method 8020.
PCBs by U.S. EPA SW-846 Method 8081, The collected sample was split by the laboratory and one portion labeled filtered was passed through a 45 micron filter prior to analysis.
mg/L = Milligrams per liter [parts per million (ppm)].
µg/L = Micrograms per liter [parts per billion (ppb)].
Results shown in bold exceed the MTCA Method A Cleanup Level.
ND<1.0 = Constituent not detected above the indicated method reporting limit.
-- = Analysis not performed.
MTCA = Model Toxics Control Act Cleanup Regulation [WAC 173-340-720(2)(a)(i), as amended 12/93].
(a) Petroleum hydrocarbons in groundwater are not regulated on the basis of separate components. The MTCA Method A groundwater cleanup level for the total of gasoline, diesel, and heavier range hydrocarbons is 1,000.0 µg/L.
Laboratory analyses performed by Analytical Resources, Inc. of Seattle, Washington.

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Kay

3 April 1997

Joan McGilton
The Boeing Company
P.O. Box 3707, M/S 7A-XA
Seattle, WA 98124-2207

RE: NBF Building 3-333 Ground Water Monitoring
ARI Job S026

Dear Joan,

Please find enclosed an original chain of custody record and a set of analytical results for the above referenced project. One water sample was received in good condition on March 20, 1997.

The sample was analyzed for PCB Aroclors by EPA SW-846 method 8081 and for total petroleum hydrocarbons by WDOE methods WTPH-g, WTPH-d, and WTPH-418.1. Consistent with previous NBF sampling events at the 3-333 Bldg., analysis for PCBs was performed on total and dissolved fractions. The dissolved fraction was filtered through a 0.45µm filter, and has been labelled 3-333-MW-1D for reporting purposes.

WTPH-D analysis of 3-333-MW-1 showed an elution pattern in the diesel #1/jet fuel range. This range is overlaps the gas and diesel #2 standard ranges.

A copy of this report and all raw data will remain on file at ARI. If you have questions or require additional information, please contact me at your convenience.

Sincerely,

ANALYTICAL RESOURCES, INC.

Jeff J. Reitan
Project Manager
jeff@arilabs.com

JJR/jr
enclosure

333 Ninth Avenue North • Seattle WA 98109-5187 • 206-621-6490 • 206-621-7523 fax

ANALYTICAL
RESOURCES
INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECD

Sample No: 3-333-MW-1D Dissolved

Lab Sample ID: S026C
LIMS ID: 97-4683
Matrix: Water

QC Report No: S026-Boeing Corporate SHEA
Project:
3-333 Area
Date Sampled: 03/20/97
Date Received: 03/20/97

Data Release Authorized:
Reported: 04/03/97

Date extracted: 03/26/97
Date analyzed: 03/29/97
Sample Amount: 500. mL
Final Ext Vol: 5.0 mL

GPC Cleanup: No
Florisil Cleanup: No
Sulfur Cleanup: No
Conc/Dilution Factor: 1:1

Reported in Total ug/L

CAS Number	Analyte	Value
12674-11-2	Aroclor 1016	1.0 U
53469-21-9	Aroclor 1242	1.0 U
12672-29-6	Aroclor 1248	1.0 U
11097-69-1	Aroclor 1254	1.0 U
11096-82-5	Aroclor 1260	1.0 U

PCB-Aroclor Surrogate Recovery

Decachlorobiphenyl	73.0%
Tetrachlorometaxylene	68.0%

Data Qualifiers

J	Indicates an estimated value when that result is less than the calculated detection limit.
E	Indicates a value above the linear range of the detector. Dilution Required
S	Indicates no value reported due to saturation of the detector.
D	Indicates the surrogate was diluted out.
U	Indicates compound was analyzed for, but not detected at the given detection limit.
B	Found in associated method blank
NA	Indicates compound was not analyzed.
NR	Indicates no recovery due to interferences.
Y	Indicates a raised reporting limit due to matrix interferences. The analyte may be present at or below the listed concentration, but in the opinion of the analyst, confirmation was inadequate.

FORM-1 PCB

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SEA437821

ANALYTICAL
RESOURCES
INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECD

Sample No: 3-333-MW-1
DILUTION Total

Lab Sample ID: S026ADIL
LIMS ID: '97-4384
Matrix: Water

QC Report No: S026-Boeing Corporate SHEA
Project: 3-333 Area
Date Sampled: 03/20/97
Date Received: 03/20/97

Data Release Authorized:
Reported: 03/31/97

Date extracted: 03/26/97
Date analyzed: 03/29/97
Sample Amount: 500. mL
Final Ext Vol: 5.0 mL

GPC Cleanup: No
Florisil Cleanup: No
Sulfur Cleanup: No
Conc/Dilution Factor: 1:10

Reported in Total ug/L

CAS Number	Analyte	Value
12674-11-2	Aroclor 1016	10 U
53469-21-9	Aroclor 1242	10 U
12672-29-6	Aroclor 1248	13
11097-69-1	Aroclor 1254	52
11096-82-5	Aroclor 1260	10 U

PCB-Aroclor Surrogate Recovery

Decachlorobiphenyl	70.0%
Tetrachlorometaxylene	70.0%

Data Qualifiers

J Indicates an estimated value when that result is less than the calculated detection limit.
E Indicates a value above the linear range of the detector. Dilution Required
S Indicates no value reported due to saturation of the detector.
D Indicates the surrogate was diluted out.
U Indicates compound was analyzed for, but not detected at the given detection limit.
B Found in associated method blank
NA Indicates compound was not analyzed.
NR Indicates no recovery due to interferences.
Y Indicates a raised reporting limit due to matrix interferences. The analyte may be present at or below the listed concentration, but in the opinion of the analyst, confirmation was inadequate.

FORM-1 PCB

RENTON ENVIRONMENTAL LABORATORY REPORT

NPDES REPORT

Lab Id: 97-A981 Field Id No.: NBF #MW-1 Well 3-321

Analyte	Result	Units	Method #	Analyst	Date	Status
METALS:						
Arsenic:	< 0.05	ppm	200.7	Mike	8/ 6/97	
Cadmium:	< 0.01	ppm	200.7	Mike	8/ 6/97	
Chromium:	< 0.01	ppm	200.7	Mike	8/ 6/97	
Copper:	< 0.01	ppm	200.7	Mike	8/ 6/97	
Lead:	< 0.01	ppm	200.7	Mike	8/ 6/97	
Nickel:	< 0.01	ppm	200.7	Mike	8/ 6/97	
Silver:	< 0.01	ppm	200.7	Mike	8/ 6/97	
Zinc:	0.34	ppm	200.7	Mike	8/ 6/97	
ORGANICS:						
MEK:	< 5	ppb	602	Linda	8/ 6/97	
Benzene:	< 1	ppb	602	Linda	8/ 6/97	
Toluene:	< 1	ppb	602	Linda	8/ 6/97	
Ethylbenzene:	< 1	ppb	602	Linda	8/ 6/97	
Methylene Chloride:	< 1	ppb	601	Linda	8/ 6/97	
1,1 Dichloroethane:	< 1	ppb	601	Linda	8/ 6/97	
Chloroform:	< 1	ppb	601	Linda	8/ 6/97	
1,1,1 Trichloroethane:	< 1	ppb	601	Linda	8/ 6/97	
Trichloroethene:	< 1	ppb	601	Linda	8/ 6/97	
Tetrachloroethene:	< 1	ppb	601	Linda	8/ 6/97	
1,1,2,2 Tetrachloroet:	< 1	ppb	601	Linda	8/ 6/97	
4-Methyl-2-Pentanone:	< 10	ppb		Linda	8/ 6/97	
2-Hexanone:	< 15	ppb		Linda	8/ 6/97	
2 Propanone:	< 15	ppb		Linda	8/ 6/97	
Methyl Propyl Ketone:	< 10	ppb		Linda	8/ 6/97	
OTHER TESTS:						
pH	6.7		150.1	Paula	8/ 6/97	
Cyanide	< 0.01	ppm	355.3	Ed	8/ 6/97	
FOG	< 2	mg/L	413.3	Linda	8/ 7/97	
Total Suspended Solids	7.40	mg/L	160.1	Linda	8/ 6/97	
Dissolved Oxygen	1.1	mg/L	360.1	Paula	8/ 6/97	
Turbidity	4.2	NTU	180.1	Paula	8/ 6/97	

Report prepared by: Paula Lockerbie Date: 8/ 7/97

Report approved by: Linda Schiquette Date: 8/7/97

KCSlip4 69732

SEA437823

ENVIRONMENTAL ANALYSIS LABORATORY
Boeing Commercial Airplane Group
P O Box 3707, MS 72-04
Seattle, WA 98124-2207
Ph. 237-1051

PAGE 1 OF 1

CHAIN OF CUSTODY RECORD/LABORATORY ANALYSIS REQUEST

(Shaded areas to be completed by lab personnel)

REPORT TO: LARRY PETERSON	ORGN.: R-1154	MAIL STOP: 19-16	PHONE: 655-8368	CHARGELINE/CONTROL NUMBER:
CC: N/A	ORGN.:	MAIL STOP:	SAMPLERS: DALLAS RADFORD / KEN CHAPUT	

SAMPLE DESCRIPTION AND LOCATION	SAMP DATE	TIME	MATX	COLL TYPE	No. CONT	LAB ID	ANALYSIS REQUESTED (Use codes on back to indicate tests.)
1. NBF, BLDG 3-321 WELL #MW-1	8/6/97	0845	A	G	9	77A982	TURBIDITY, SUSPENDED SOLIDS, MET./METALS, FOG, PH, CYANIDE, VOA TOTAL, D.O., SEMI-VOA
2.							
3.							
4.							
5.							
6.							
7.							
8.							
9.							
10.							

Comments/Special Instructions:
RUSH
PLEASE FAX ANALYTICAL REPORT TO ATTN.: LARRY PETERSON 544-7297

Relinquished by (SIGNATURE)	Relinquished by (SIGNATURE)	Relinquished by (SIGNATURE)
Printed Name: Ken Chaput	Printed Name:	Printed Name:
Date: 8/6/97 Time: 0945	Date: Time:	Date: Time:
Received by:	Received by:	Received by:
Printed Name:	Printed Name:	Printed Name:
Date: Time:	Date: Time:	Date: Time:

RECEIVED
SEP 09 1998
KING COUNTY
INDUSTRIAL WASTE

X-27775C ORIG. 11/96

KCSlip4 69733

SEA437824

RENTON ENVIRONMENTAL LABORATORY REPORT

METRO REPORT

Lab Id: 97-A983 Field Id No.: NBF Dewatering Site

Field Notes: NBF Dewatering

Analyte	Result	Units	Method #	Analyst	Date	Status
METALS:						
Arsenic:	< 0.05	ppm	200.7	Mike	8/ 7/97	
Cadmium:	< 0.01	ppm	200.7	Mike	8/ 7/97	
Chromium:	0.02	ppm	200.7	Mike	8/ 7/97	
Copper:	0.01	ppm	200.7	Mike	8/ 7/97	
Lead:	0.01	ppm	200.7	Mike	8/ 7/97	
Nickel:	< 0.01	ppm	200.7	Mike	8/ 7/97	
Silver:	< 0.01	ppm	200.7	Mike	8/ 7/97	
Zinc:	0.09	ppm	200.7	Mike	8/ 7/97	
OTHER TESTS:						
pH	7.5		150.1	Linda	8/ 6/97	
Settleable Solids	< 0.5	mL/L/hr	160.5	Linda	8/ 6/97	
Dissolved Oxygen	7.8	mg/L	360.1	Linda	8/ 6/97	
Turbidity	2.0	NTU	180.1	Linda	8/ 6/97	

Report prepared by: _____ Date: 8/ 7/97

Report approved by: Linda L. Riquette Date: 8/7/97

KCSlip4 69734

SEA437825

ENVIRONMENTAL ANALYSIS LABORATORY
Boeing Defense and Space Group
P O Box 3999 Ph 773-8934 M/S 8J-55
Seattle WA 98124-2499

PAGE 1 OF 1

CHAIN OF CUSTODY RECORD AND LABORATORY ANALYSIS REQUEST

(SEE BACK FOR INSTRUCTIONS)

Contact	Orgn.	Mail Stop	Phone	Chargeline/Control Number
MARK WICKLEIN		19-16	655-4930	

Samplers: Damon F

SAMPLE DESCRIPTION AND LOCATION (INCLUDE PLANT, BLDG. #, SITE SAMPLE #, ETC.)	SAMP DATE	TIME	MATX	COLL TYPE	No. CONT	LAB ID (LAB USE ONLY)	ANALYSIS REQUESTED (Use codes on back to indicate tests)
NBF Dewater Sate	8/6/97	2:10	A	G	4	97-A783	PO/PH, MET. Metals, Turbidity, Set. Solids

Comments/Special Instructions
Rush

Fx Results to Mark W.

Relinquished by (SIGNATURE)	Relinquished by (SIGNATURE)	Relinquished by (SIGNATURE)
Printed Name: Damon Fredericks	Printed Name	Printed Name
Company: NBF	Company	Company
Date: 8/6/97 Time: 14:35	Date Time	Date Time
Received by (SIGNATURE): J. Cockerham	Received by (SIGNATURE)	Received by (SIGNATURE)
Printed Name: J. Cockerham	Printed Name	Printed Name
Company: Renton Lab	Company	Company
Date: 8/6/97 Time: 14:35	Date Time	Date Time

RECEIVED
SEP 09 1998
KING COUNTY
INDUSTRIAL WASTE

X-27775 REV 2/95